1 – 18. (Cancelled)

19. (Currently Amended) A method of manufacturing and using a device having an array of carbon nanotubes for the receipt and radiation of electromagnetic energy therefrom, comprising:

providing a substrate;

arranging a predetermined pattern of nanotube growth sites on said substrate;

growing at least one electromagnetic energy receiving carbon nanotube from said growth sites on said substrate;

receiving electromagnetic energy by said at least one carbon nanotube; and

radiating said electromagnetic energy by a carbon nanotube.

20.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, including:

growing said carbon nanotubes to a specific length.

21. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, including:

influencing growth direction of said carbon nanotubes.

22. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, including:

providing a feedback control system to monitor and control said growing of said carbon nanotubes on said substrate.

23. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, including:

growing said carbon nanotube to a specific size.

24.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 23, including:

controlling said growing of said carbon nanotube on said substrate to a specific diameter.

25.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 21, wherein said influencing growth direction of said carbon nanotubes comprises:

introducing an external field to said pattern of carbon nanotube growth sites on said substrate.

26.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 25, wherein said external field comprises a static electric field.

27. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 25, wherein said external field comprises an electro- magnetic field.

28.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said predetermined pattern of carbon nanotube growth sites comprises a periodic pattern of growth sites.

29.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said growth sites include a metal therewith.

30. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said growth sites include a metal oxide therewith.

31. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said substrate is comprised of a doped material.

32. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said substrate is comprised of silicon.

33.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 22, wherein said feedback control system comprises an optical system.

34.(Currenrtly Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein growth sites are comprised of spaced-apart periodic growth locations comprising depressions.

35. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 34, including:

depositing a nanoparticle in said depressions; and

growing said carbon nanotubes from said nanoparticles in said depressions in said substrate.

36. (Currently Amended) The method of manufacturing a device havng an array of carbon nanotubes as recited in claim 19, wherein said pattern of nanotube growth sites comprises an ordered array of growth locations on said substrate.

37.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, including:

heating said substrate in a chamber;

introducing a carbon bearing gas to said chamber to create carbon nanotubes on said growth locations on said substrate;

applying an external controlling field to said substrate in said chamber; and

controlling growth of said carbon nanotubes on said substrate.

38.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said external controlling field comprises a static electric field.

39. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said external controlling field comprises a magnetic field.

40. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 19, wherein said external controlling field comprises an electromagnetic field.

41.(Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 36, including:

separating adjacent carbon nanotubes is effected by inducing a like- charge in said adjacent at least one carbon nanotubes.

42. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 35, including:

orienting and directing carbon nanotube growth by orienting said depressions as guides for said carbon nanotubes.

43. (Currently Amended) The method of manufacturing a device having an array of carbon nanotubes as recited in claim 42, wherein said depressions also comprise apertures extending through said substrate.

44. (Currently Amended) A method of controlling growth of a nanotube on a substrate wherein said nanotube and said substrate are part of a device for receipt, converting and radiation of electromagnetic energy by a nanotube on said substrate, comprising:

providing a substrate;

growing at least one nanotube on said substrate;

applying an external field to said at least one nanotube on said substrate during said growing of said at least one nanotube on said substrate; ~~and~~

orienting said external field to permit the influencing of growth of said at least one nanotube on said substrate; and

receiving, converting and radiating electromagnetic energy through a nanotube grown on said substrate.

45.(Previously Presented) The method of controlling growth of a nanotube on a substrate, as recited in claim 44, wherein said external field comprises a static electric field.

46. (Previously Presented) The method of controlling growth of a nanotube on a substrate, as recited in claim 44, wherein said external field comprises an electromagnetic field.

47. (Currently Amended) A method of manufacturing and using an array of carbon nanotubes on a substrate wherein said nanotubes and said substrate are part of a device used for receipt, converting and radiation of electromagnetic energy by at least one of said nanotubes, comprising:

providing a substrate;

arranging an ordered pattern of growth sites on said substrate; and

growing a plurality of nanotubes on said plurality of growth sites on said substrate; and receiving, converting and radiating electromagnetic energy through said plurality of said nanotubes grown on said substrate.

48. (Previously Presented) The method of manufacturing an array of carbon nanotubes on a substrate as recited in claim 47, including:

growing said nanotubes to a specific length.

49. (Previously Presented) The method of manufacturing an array of carbon nanotubes on a substrate as recited in claim 47, including:

arranging a metal at said growth sites on said substrate.

50. (Previously Presented) The method of manufacturing an array of carbon nanotubes on a substrate as recited in claim 47, including:

arranging a metal oxide at said growth sites.

51. (Previously Presented) The method of manufacturing an array of carbon nanotubes on a substrate as recited in claim 47, wherein said substrate is comprised of silicon.

52. (Previously Presented) The method of manufacturing an array of carbon nanotubes on a substrate as recited in claim 47, wherein said substrate is comprised of a doped material.

53. (Currently Amended) A method of manufacturing a carbon nanotube on a substrate wherein said nanotube and said substrate are part of a device used for receipt, converting and radiation of electromagnetic energy by a nanotube on said substrate, comprising:

providing a substrate on which to grow an array of nanotubes;

growing an array of nanotubes on said substrate; ~~and~~

providing a feedback control system to monitor and control said array of nanotubes growing on said substrate; and

receiving, converting and radiating electromagnetic energy through said plurality of said nanotubes grown on said substrate.

54. (Previously Presented) The method of manufacturing a carbon nanotube as recited in claim 53, wherein said feedback control system comprises an optical system.

55. (Previously Presented) The method of manufacturing a carbon nanotube as recited in claim 53, including:

limiting said growing of said nanotubes on said substrate to a specific size.

56. (Previously Presented) The method of manufacturing a carbon nanotube as recited in claim 53, including:

limiting said growing of said nanotubes on said substrate to a specific length.

57. (Previously Presented) The method as recited in claim 53, including:

limiting said growing of said nanotubes on said substrate to a specific diameter.

58. (Currently Amended) A method of manufacturing a carbon nanotube, comprising:

growing a first carbon nanotube from a <u>first</u> growth site; and

growing a second nanotube from said <u>first</u> growth site.

59. (Previously Presented) The method as recited in claim 58, wherein said growth site is a semiconducting junction.

60. (Currently Amended) The method as recited in claim 59, wherein said first and second nanotubes are in general axial alignment with one another and said growth site therebetween

61.(Previously Presented) The method as recited in claim 59, wherein said semi-conducting junction is disposed in a substrate.

62. (Currently Amended) A method of manufacturing a carbon nanotube device which includes a substrate, said device used for receipt, converting and radiation of electromagnetic energy, comprising:

arranging a substrate material with a set of specific location growth sites on said substrate;

growing an array of carbon nanotubes at said growth sites on said substrate wherein said nanotubes have a controlled dimension ; and

receiving, converting and radiating electromagnetic energy through said plurality of said nanotubes grown on said substrate of said device.

63. (Previously Presented) The method as recited in claim 62, wherein said controlled dimension of said nanotubes comprises the length of said nanotubes.

64. (Currently Amended) The method as recited in claim 62, wherein said growth sites are comprised of apertures arranged ~~arranges~~ in said substrate.

65. (Previously Presented) The method as recited in claim 64, wherein said apertures have a metallic catalyst deposited therein.

66. (Previously Presented) The method as recited in claim 62, including:

tapering an edge portion of said substrate material.

67. (Previously Presented) The method as recited in claim 62, including:

doping at least part of said substrate to render at least part of said substrate polarized.

68. (Previously Presented) The method as recited in claim 62, including:

polarizing at least part of said substrate.

69. (Cancelled)

70. (Cancelled)

71. (Cancelled)

72. (Cancelled)

73. (Cancelled)

74. (Cancelled)

75. (Cancelled)

76. (Cancelled)

77. (Cancelled)

78. (Currently Amended) A method of controlling the manufacture of carbon nanotubes on a substrate which comprises a device used for receipt, converting and radiation of electromagnetic energy, comprising:

providing [[a]] said substrate with a plurality of growth locations thereon;

heating said substrate in a chamber;

introducing a carbon bearing gas to said chamber to create carbon nanotubes on said growth locations on said substrate;

applying an external controlling field to said chamber during said heating of said substrate; ~~and~~

controlling growth of nanotubes growing on said substrate by said external controlling field; and

receiving, converting and radiating electromagnetic energy through said nanotubes grown on said substrate of said device.

79. (Previously presented) The method of claim 78, wherein said external controlling field comprises a static electric field.

80. (Previously Presented) The method of claim 78, wherein said external controlling field comprises a magnetic field.

81. (Previously Presented) The method of claim 78, wherein said external controlling field comprises an electromagnetic field.

82. (Previously Presented) The method of claim 78, including:

influencing a separation of said nanotubes by effecting adjacent repulsion between said nanotubes.

Please re-number and re-depend the remaining claims accordingly.